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touched upon. Some work in dietetics will be given, and toward the end of the quarter methods of teaching cookery, with the subject-matter to be presented, will be discussed. During the quarter different members of the class will be asked to report on certain assigned topics.

The foods which will be studied in January are milk, cheese, butter, eggs, and meat.

References: U. S. Farmers' Bulletins: *Food, Nutritive Value and Cost,* No. 23; *Souring of Milk,* No. 29; *Meats, Composition and Cooking,* No. 34; *Fact about Milk,* No. 57; *Milk as Food,* No. 74; Richards' *Food Materials and Their Adulterations.*

Cooking in the Primary Grades

Flora J. Cooke

On account of the necessary delay in securing a properly equipped room for the simple cooking of the primary children, it has been impossible to carry out the work as outlined for this department in the COURSE OF STUDY for October, November, and December. The children have planned, made their cook books, entered their accounts and recipes in them up to date, and made a fair beginning in each phase of the work. To take up the study of a new food in January, however, would be to leave the children needlessly unsatisfied, and many of the problems which they have been working upon unsolved. For instance, they brought to school the best cooking apples that the market offered, and by cooking each in the same amount of sugar and water, they tried to decide which was really the best. This and many other questions equally interesting to them they were unable to settle during this month.

We shall, therefore, continue the work upon fruits, cereals, and sugar through January, allowing the children to discover all they can from their own standpoint under the motive of trying to serve some simple food in the best possible way to their guests at luncheon. The teacher's effort will be to direct the efforts and provide the best possible conditions for the independent work of the children.

Number: Incidentally, in the work already done, the following units of measurement have been functioned through their use: Pound, half-pound, quarter-pound, quart, pint, gill, one-half cup, one-quarter cup; eight tablespoonfuls of thin liquid equal to half-cup. Each normal child is required to do all his necessary measuring and weighing so that his results are the natural outcome of his judgment and accuracy in measurement. His own criticism of his product is the only stimulus necessary to careful work.

The recipes used during this month will be given in the next number of the COURSE OF STUDY.

Mathematics

George W. Myers

Pedagogic School

The work of the Pedagogic School will be directed toward the teaching of the continent of North America. This will be done through the aid of the following:

Exercises: 1. Estimate the length, breadth, and area of the Institute playground.

2. Measure and determine its length, breadth, and area.

3. Range out and establish an east and west

line across Lincoln Park, just north of the Academy of Sciences. As a preliminary—

a. Range out and measure at least three times a line not less than 500 feet long over level ground.

b. Range out and measure a line at least 300 feet long over rough ground, the line being obstructed by lagoons, hills, and buildings.

4. Make a preliminary topographic map of the part of the park lying south of the east and west line of Exercise 3.

a. Plot on the map the positions of buildings, monuments, lagoons, large trees, etc.

b. Draw contour lines, and represent roughly all shore lines, street lines, and buildings in proper positions with reference to the meridian.

c. Represent on the map both the geographic and magnetic meridians.

5. By a more careful survey make a more accurate map embodying the same data as above.

6. Estimate, then measure by the rough method of the plane table, and finally by more accurate surveys, the area of the suggested tract.

Applications

Obtain a large and accurate map of Illinois, containing as much detailed information as possible. From this map answer the following questions:

1. How long is Illinois in degrees and in miles?

2. How broad is it in degrees and in miles?

3. What is its area in acres and in square miles, as determined from the map?

4. What is the length and bearing of the longest line crossing the State?

5. What is the length and bearing of the line giving its greatest breadth?

6. What is the breadth of the State in degrees? What the length?

7. Using the number of degrees in the lines giving the greatest length and breadth of the State, and the number of miles in the lengths of these lines, ascertain the number of miles in one degree in each case.

8. Account for the difference in the number of miles per degree in the two cases.

9. From a contour map find the highest point of the State. The lowest point. What is the difference?

10. What would be the difference of the barometric readings at these two points?

11. From a map of North America study the same questions as are asked above for Illinois.

Astronomy

1. What is the inclination to the horizon of the solar rays in Chicago on the 1st and 15th of each month of the year at apparent noon? Answer from observation.

2. Between what limits does the inclination vary during the year?

3. What is the cause of this variation?

4. Answer Question 1 from inference for Cairo, Centralia, Peoria, Quincy, etc.

5. How do the inclinations for corresponding dates differ for the suggested places? Explain the difference.

6. How much more heat does a square meter of the earth's surface at Chicago receive in a given time on June 21st than on March 21st? Than on September 21st? Than on December 22d? Answer from observation records.

7. Answer same for Cairo from inference.

8. When is the sun's diameter, measured with the sextant, the larger, in June or in December? (The sextant and its use explained.)

9. What does this indicate as to the distances of the sun from the earth on these dates?

10. Can you determine how much more heat a given surface receives when the sun is nearest than when it is farthest away?

11. Can the varying distance of the sun from the earth account for the difference between the amounts of heat referred to in 5?

12. How is the inclination of solar rays connected with the amount of heat received from the sun?

13. Is the varying inclination of the rays capable of explaining the fluctuation in the amount of heat received in Chicago in summer and winter? Compare with answer to Question 5.

14. On what great circle of the sky is the sun always located at 6 a.m., apparent solar time? at 12 m.? at 6 p.m.?

15. How do the sunset and sunrise points move from day to day during the year? Why do they move so?

16. How would these points seem to move to an observer in southern Florida? in northern Alaska?

17. Does the sun ever shine on the north side of a building in this latitude (42° N.)? Why?

18. What would the diurnal path of the sun be to an observer on the Equator on the following dates: March 21st, April 5th, April 21st, etc., throughout the year?

19. Answer the same question for an observer on the north polar circle. On the north pole· On the south polar circle. On the south pole.

20. How long does it take the sun to move from the Washington to the San Francisco meridian?

21. Explain the system of time belts on which Standard time is based.

22. Extend your arm in the direction of the apex of the earth's way at sunrise, noon, sunset; at midnight and at intervening times.

23. If you were standing at this moment at Port Mulgrave, Alaska (Lat. 59°34′; Long. 139°46′), where would the sun seem to be at noon to-day?

24. About what is the sun's declination to-day?

25. About what is the siderial time at this instant?

26. How can you easily estimate the approximate values of the sun's declination and of siderial time for any day of the year?

27. Indicate the moon's diurnal path across the sky to-day as it would be to an observer in Chicago; in Denver; in Key West, Florida; in Port Mulgrave, Alaska. (See the American Ephemeris for moon's declination).

The Preparation and Use of Reading Leaflets in the Primary Grades

Flora J. Cooke

In the former numbers of the COURSE OF STUDY the plan of using all the appropriate reading books in the school library has been fairly discussed, but the explanation of the construction and purpose of the regular series of leaflets which are printed each month has not been fully presented. The motive of these reading lessons is to relate more closely the school experiences of the children of the First and Second Grades with the rest of their lives and make their reading react directly upon their actions. To illustrate these points one typical reading lesson has been selected to represent each month of the quarter.

We have been asked to prepare such reading lessons in advance, so that the readers of the COURSE OF STUDY may use the leaflets as supplementary reading during the same month that they are being used in the Chicago Institute, as many of them are related to the great festivals of the year, such as Thanksgiving and Christmas, and are not of as great use later in the season.

It seems impossible in many cases to do this if the reading lessons are in any way to sum up the observations of the children and are to be the outcome of their work. In such cases as the story of the first Christmas tree or the Janus myth, they can always be prepared in advance in time for use in the COURSE OF STUDY, but in the lessons on the farm, for example, it would be impossible to foresee and prepare the reading lesson at the beginning of the month. The notes on the farm and the Pilgrim reading lessons are merely suggestive, and do not represent a fixed method of work or form of expression. The effort is to use whatever form seems best adapted to arouse the desired images most economically and clearly in the children's minds.

At the end of the year these leaflets will be classified by the children and bound in book form, and become their personal property.

The farm reading lesson which is printed below is the result of a field excursion taken by children in the First Grade of Chicago Normal School in 1898.

The children of the Chicago Institute went to a farm at Lake Bluff October 2, 1900. The reading lesson summing up the experiences of that day would be quite